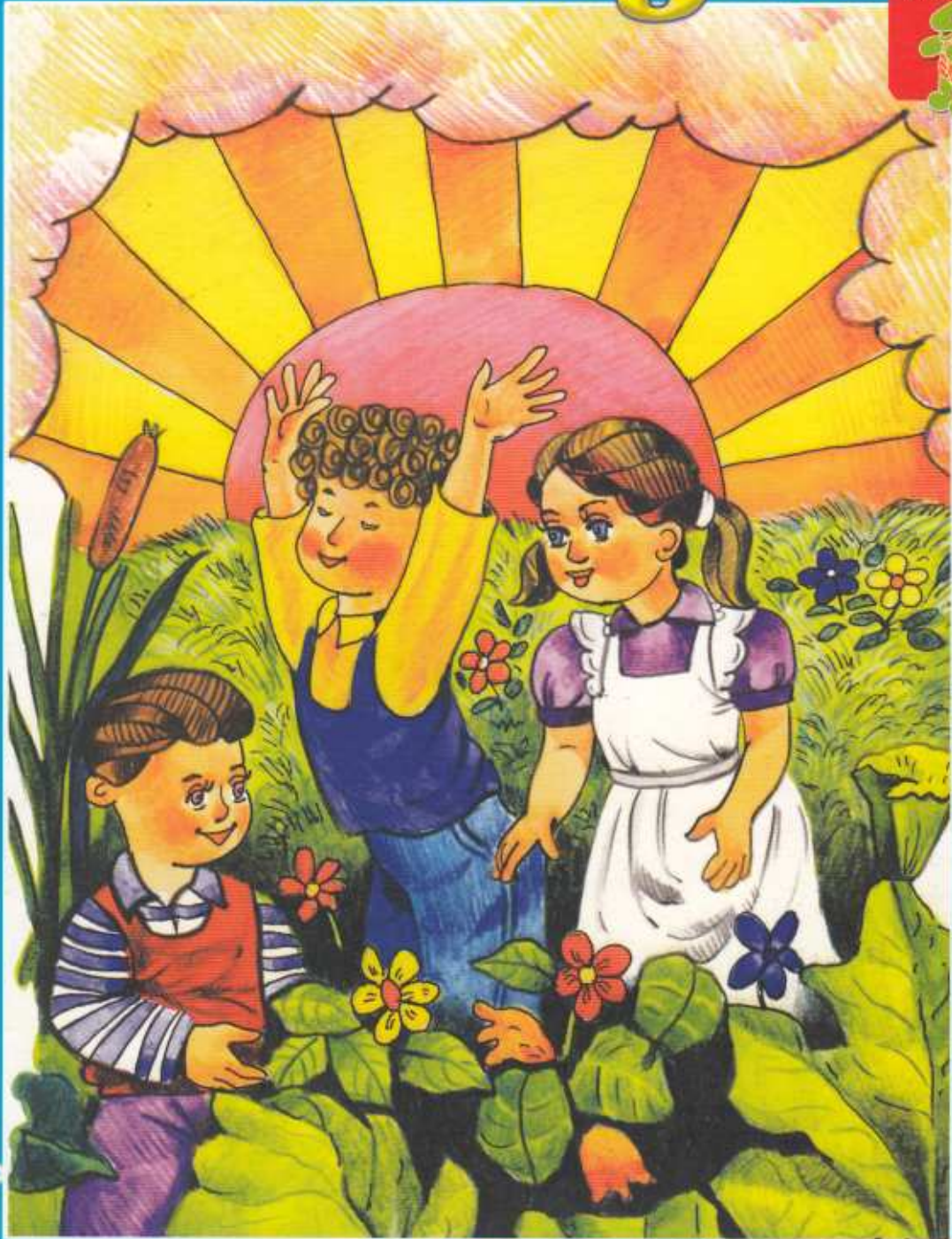


# Sun Magic

Terrapin



Level 2



This book belongs to





# Sun Magic

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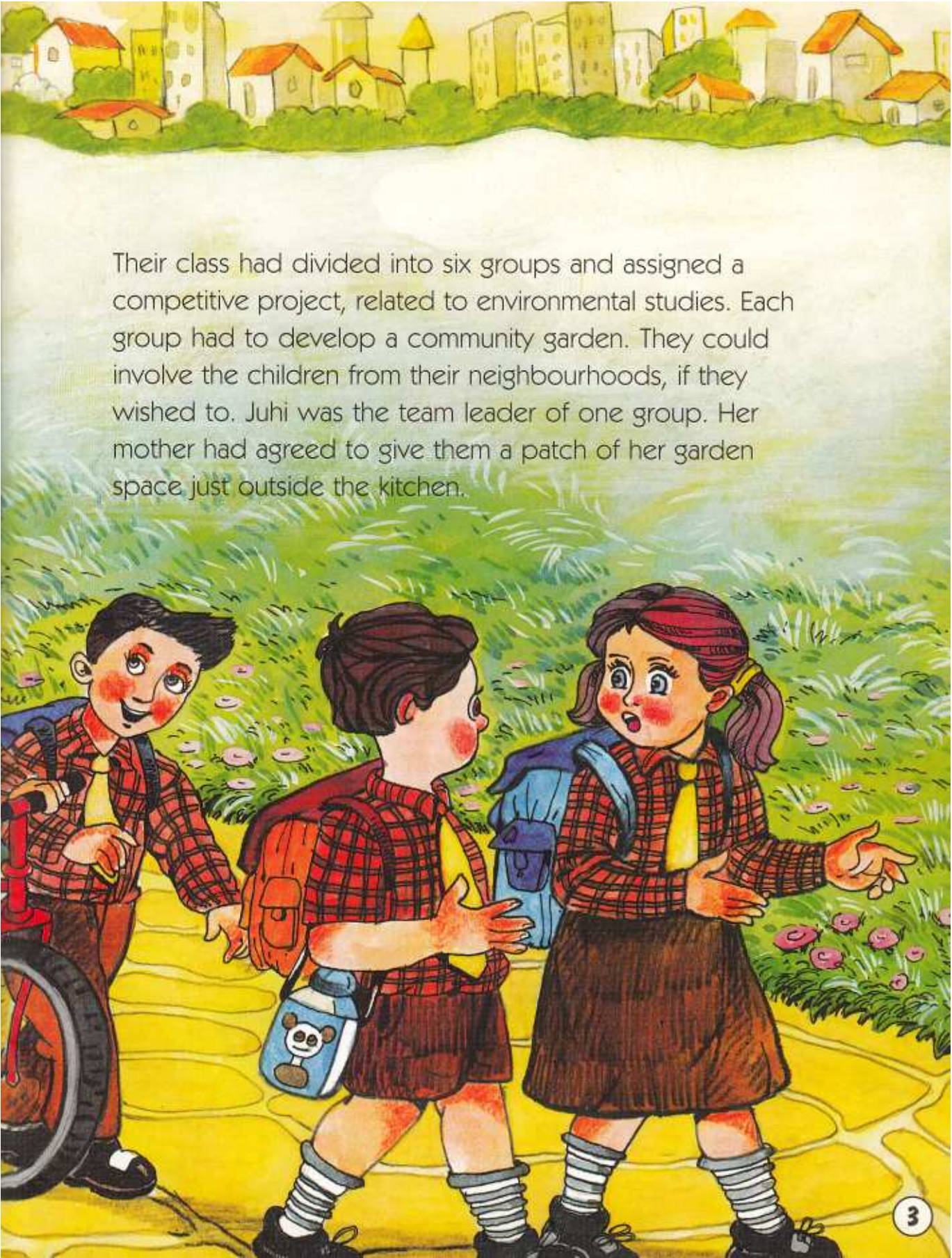




Shiva and Juhi went to the same school and were neighbours too. One day, they started arguing as they walked towards their school bus. "Juhi, it is *our* project and we have to do it together," said Shiva. "Yes, of course, but Shiva you can't play with your ball all over it. Play football in some other place!" Juhi replied. "Now hurry up or we will miss the bus!"

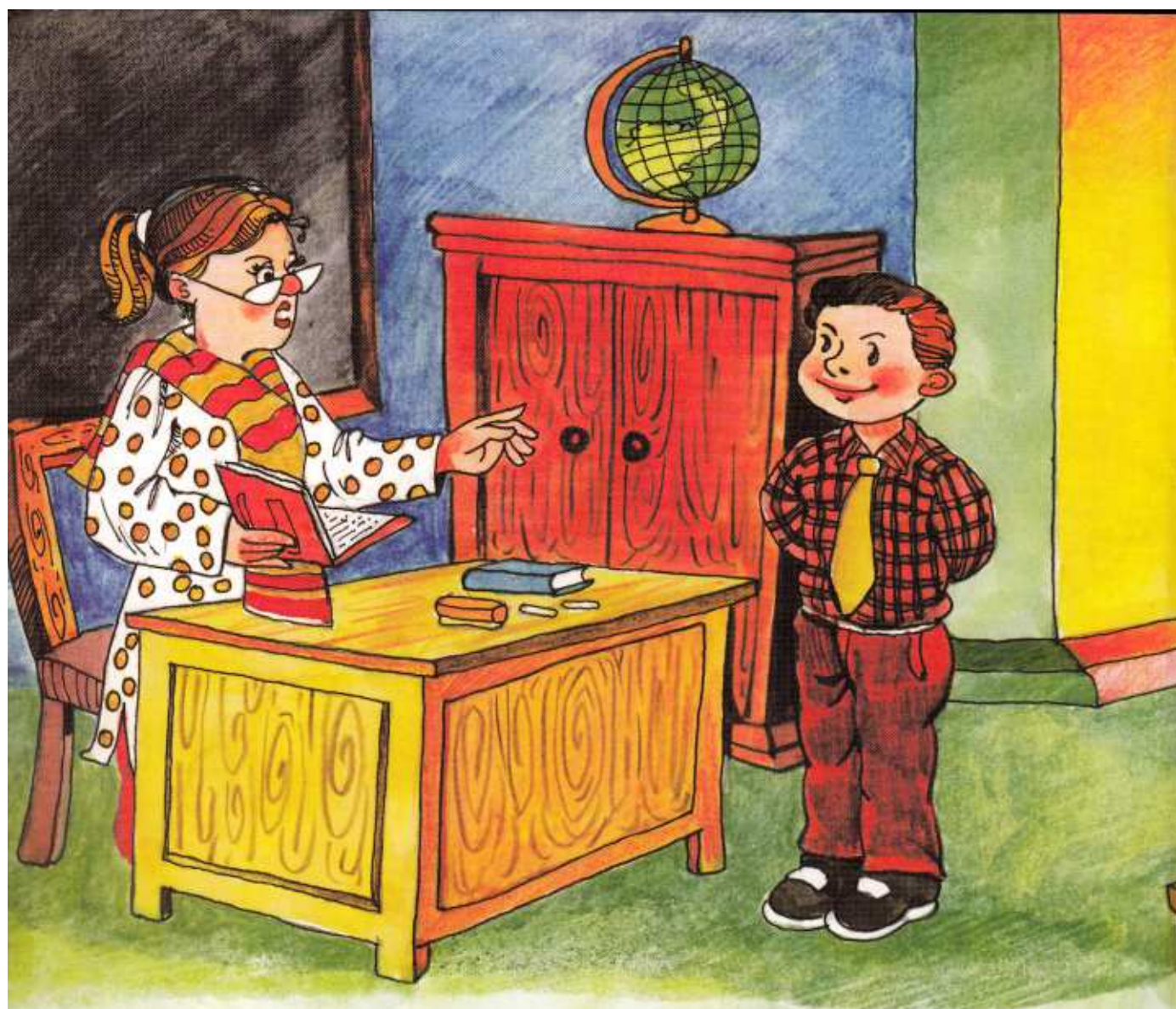






Their class had divided into six groups and assigned a competitive project, related to environmental studies. Each group had to develop a community garden. They could involve the children from their neighbourhoods, if they wished to. Juhi was the team leader of one group. Her mother had agreed to give them a patch of her garden space just outside the kitchen.





In class, there had been much commotion that day. All the students were excited. "Tara, how is your garden coming up?" asked Shiva. "Oh, it's a secret!" she replied. The class teacher said, "Now listen carefully children! They are your community gardens, so work together as teams."

"Ma'am, can I plant tomatoes?"

"Ma'am! Won't flowers be prettier?"

"Ma'am!!! What about earthworms?"

"Children, you can make the garden as pretty as you like but you have to put in the effort," said the teacher. The team leaders have to lead well and





the team members have to contribute. After six months, we'll ask the judges to select the BEST community garden." She also advised them: "Now remember! Like you, plants also need good things."

"Ma'am, food?" wondered Juhi.

"Water!" said Tara.

"Air!" exclaimed Tina.

"What else? Come on, tell me," asked the teacher.

"Just a little sunshine!" came Shiva's loud answer.

"Brilliant!" said the teacher.



"Tell us more about the Sun, Ma'am," Juhi said.

"Hmmm, that's your homework for today! Go home and find out all you can about the Sun," said the teacher.

The class of nine-year-olds broke out into animated chatter.

"But from where are we going to find out?" cried Raghu.

"I will get onto the Internet," decided Minu.

"I don't have a computer!" sulked Tara.

"Ma'am, please give us two days to find out," requested Juhi.

"Okay, but listen carefully. You can read a lot about the Sun from the excellent reference books we have in our school library."

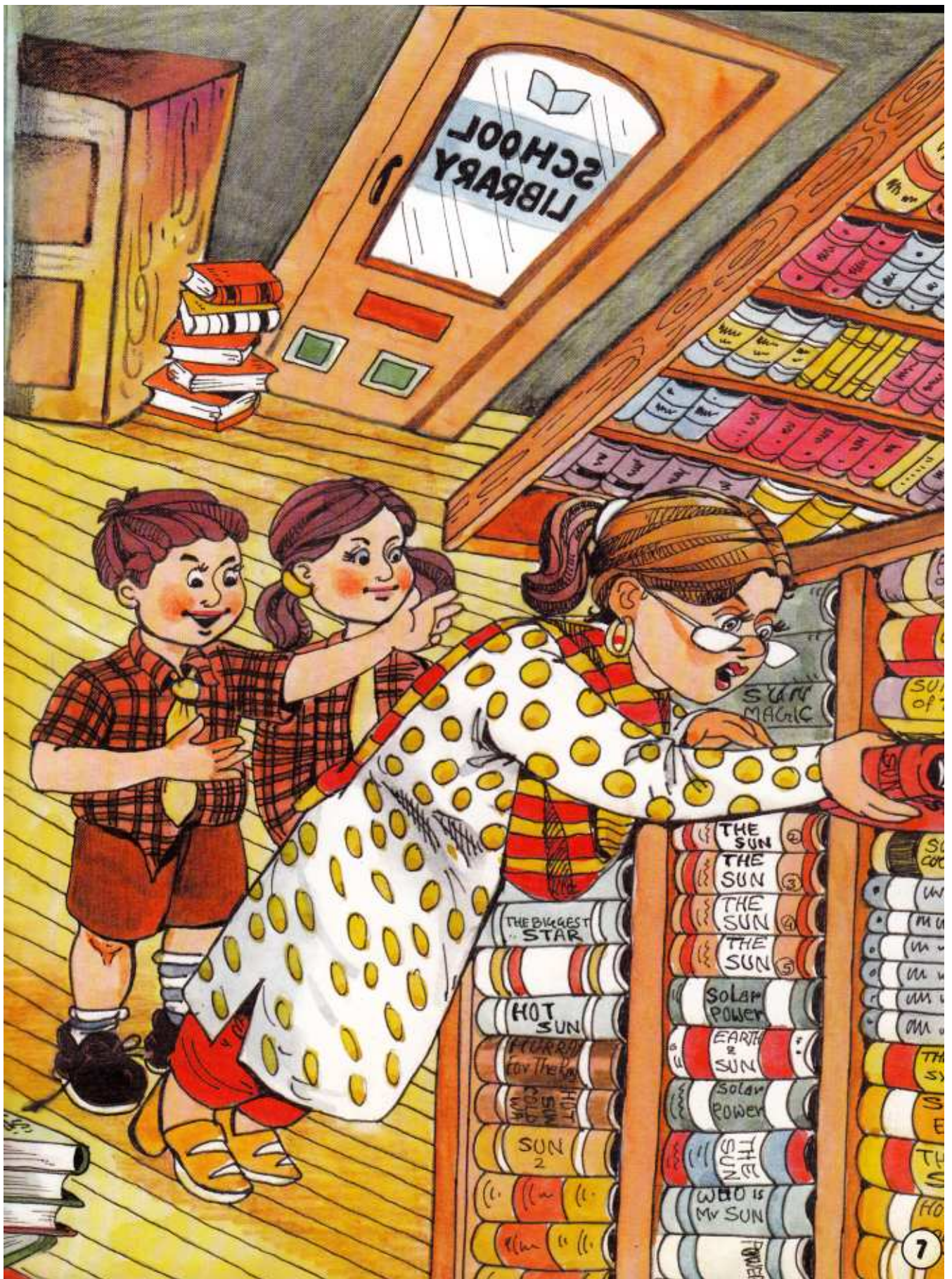
The whole class sighed with relief: "Thank God! We have two days to prepare," said Shiva.

"Thank the teacher!" said Juhi.

The school bell rang and it was time to go home.









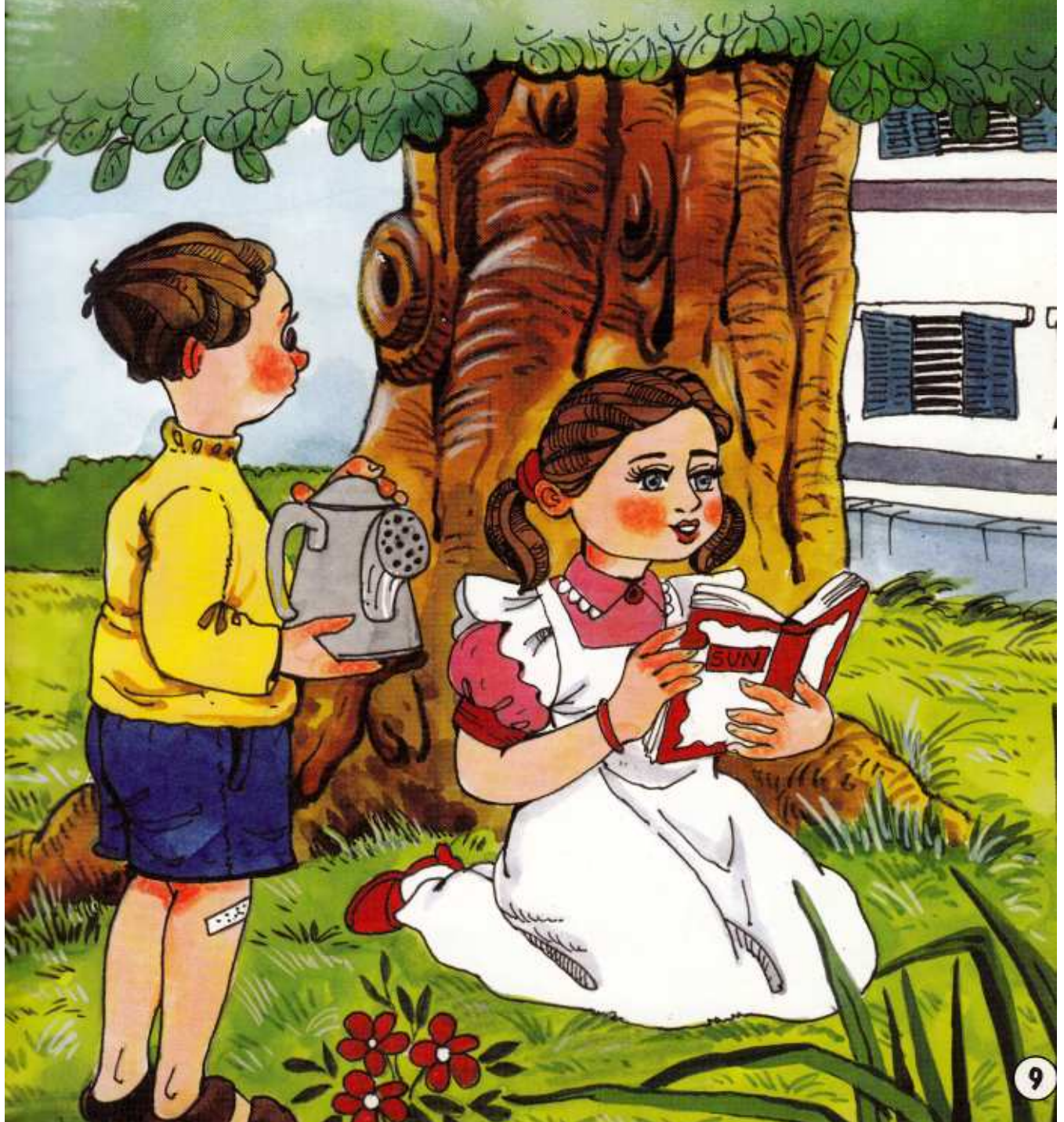
Juhi reminded Shiva, "Don't forget to come to my place at four o' clock! We have lots to do. Tell Sindhu, Rohan, Minu, Padma, Raghu, Arjun also... Okay???"

"I'll do that," replied Shiva. He ran home and got on the phone to tell the other children. Juhi gobbled her food and got down to plan the programme for the evening.





On the dot of four o'clock, Juhi was out in the garden waiting for the others to arrive. "Juhi, I brought a hand spade," yelled Tara. Sindhu, Rohan, Shiva, Minu, Padma, Raghu and Arjun also arrived with rakes, hoes, watering cans and small baskets to carry leaves. Together, they cleared the patch.





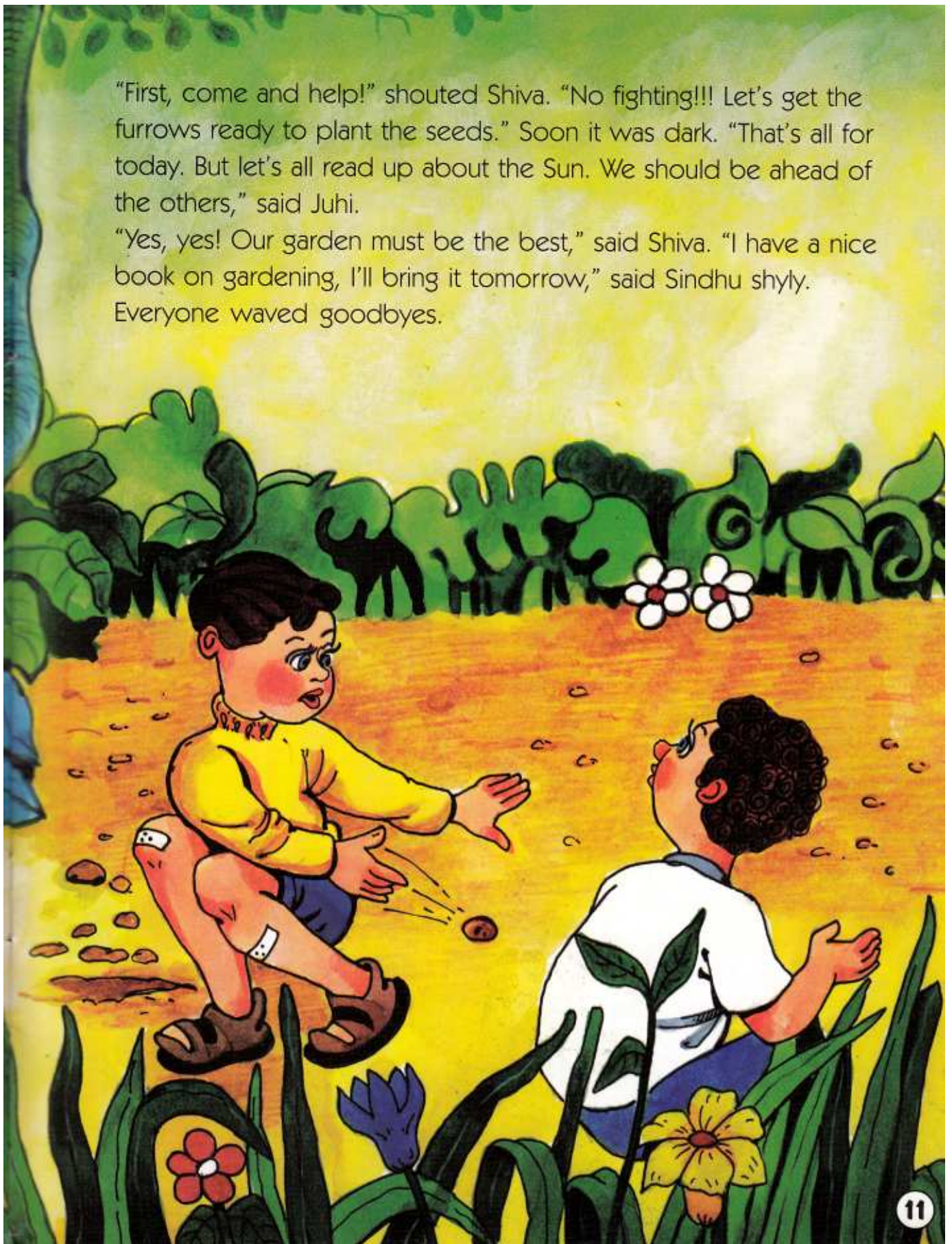


"Let's dig furrows," said Juhi, reading from her little notepad. "I brought some seeds," said Minu. Everyone had brought some. Arjun cried, "Shiva, stop pushing all the stones to my side!" Raghu pushed Rohan, saying, "This is my part of the garden, move over!" Padma was sitting coolly, reading a book. Juhi told her, "Come on Padma, we have to work as a team." Padma replied, "Oh! I'm reading up about the Sun. Hope this patch will get some sunshine?"



"First, come and help!" shouted Shiva. "No fighting!!! Let's get the furrows ready to plant the seeds." Soon it was dark. "That's all for today. But let's all read up about the Sun. We should be ahead of the others," said Juhi.

"Yes, yes! Our garden must be the best," said Shiva. "I have a nice book on gardening, I'll bring it tomorrow," said Sindhu shyly. Everyone waved goodbyes.





Two days later, back in class, some children had already found out some things about the Sun and were bursting to speak. Some had more questions. "Good morning, children. Today, we will talk about..." Before the teacher could complete her sentence, the class chorused, "The SUN!"

"Why don't we play a little game? Each one give me one sentence about the Sun and say why it is important for your garden. All correct statements will get two points." She drew a nice, round Sun.

"What about the garden?" asked Shiva. "Well, you have a real garden to work on. You'll see for yourself how the Sun helps." "Shall we start with you, Tara?" she said.





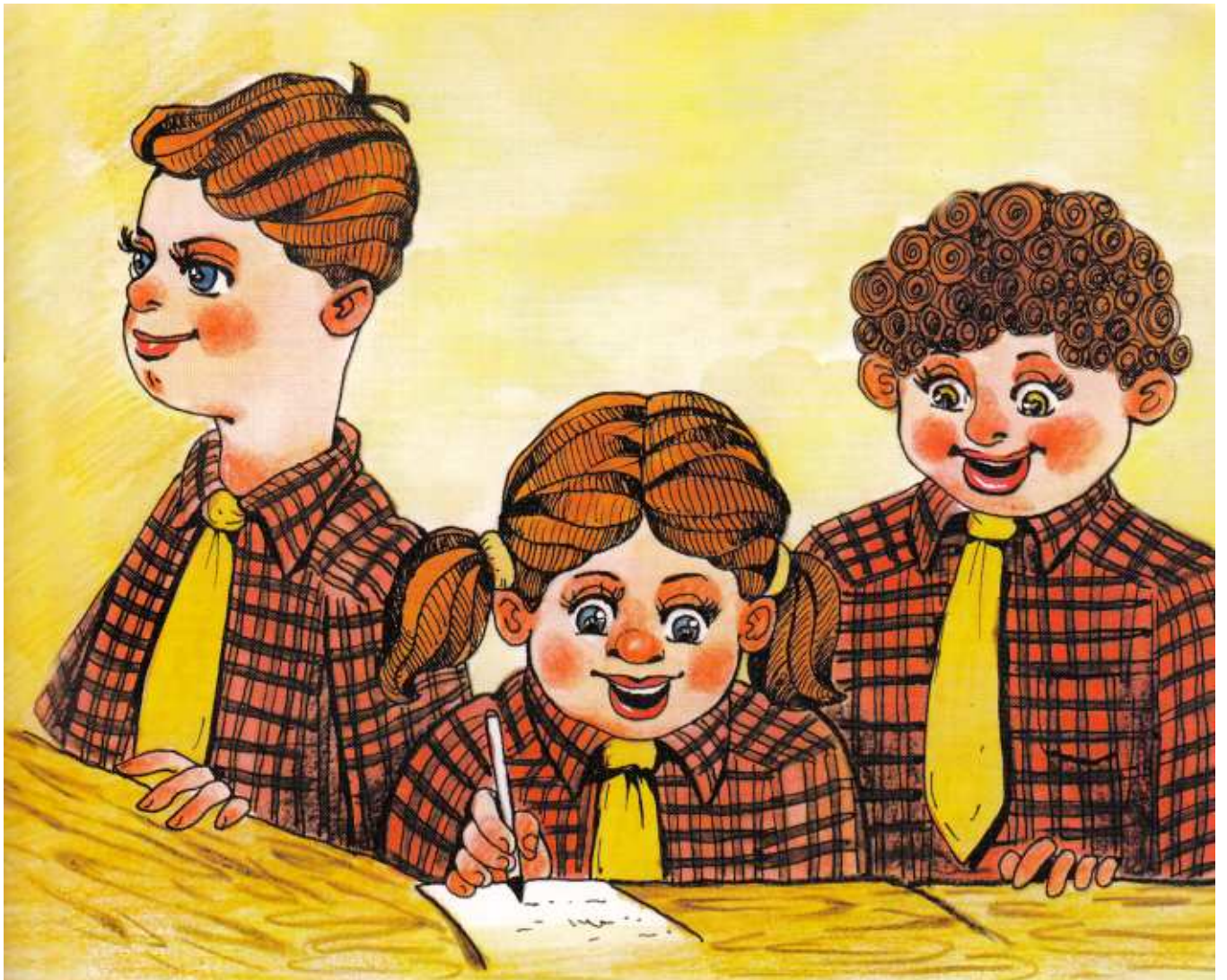




"The Sun is round and hot," said Tara.  
"The Sun gives us light and heat," said the  
next child. The teacher was adding  
sentences on the board.







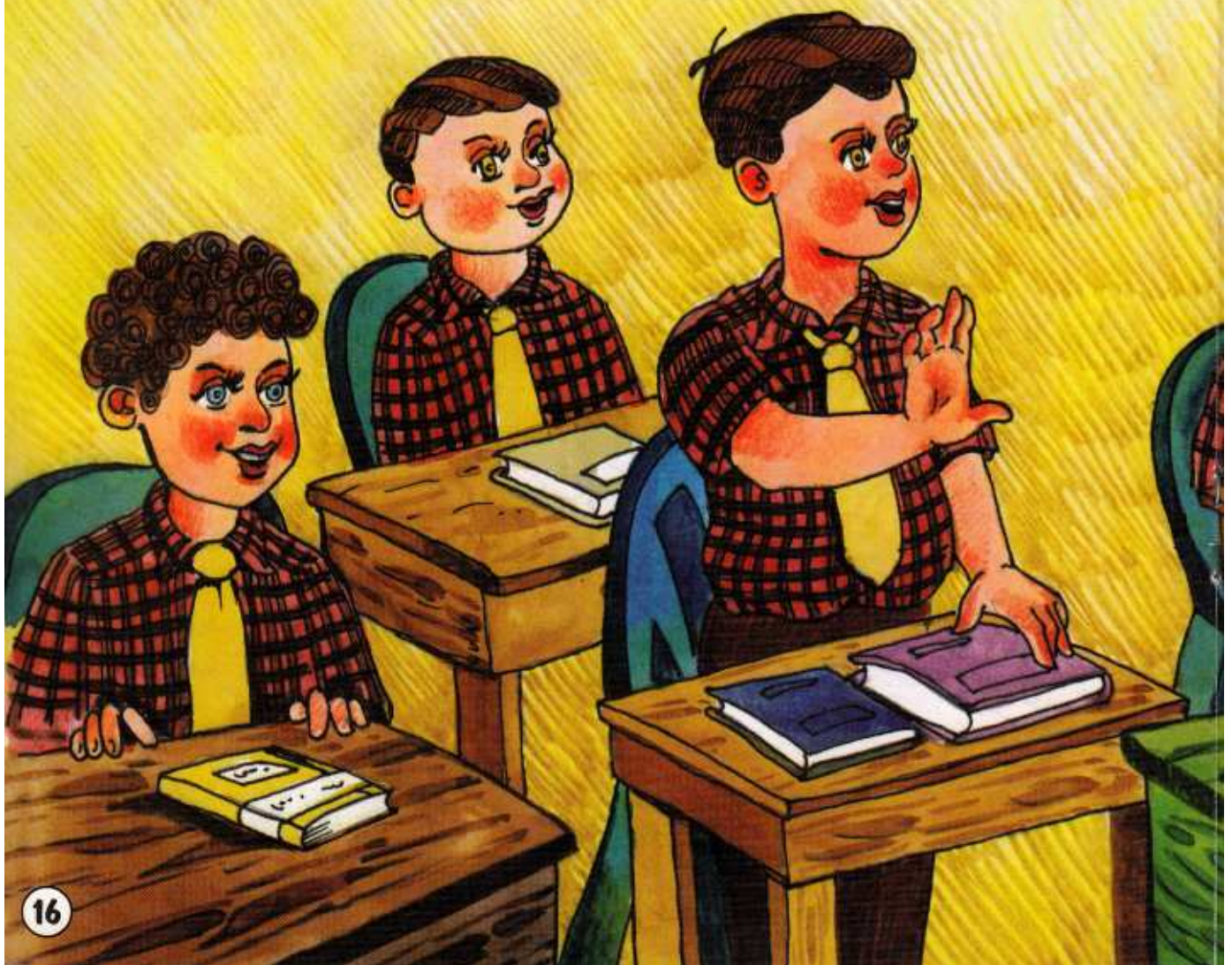
"The Sun is the centre of the solar system. This enormous star gives us so much light and heat that we can grow food and also keep warm."

"Very good Padma!" "Ma'am, I read about it," Padma replied.

"The Sun is the largest star in the galaxy and energy is produced in its core," said Shiva confidently. It was Juhi's turn next.



Juhi said, "The energy we get from the Sun's heat and light is known as solar energy. Nature uses this energy." The teacher said, "Very interesting! How can we use it?" The class was silent. "Well, plentiful solar energy comes from the Sun. Though we use wood, coal, petrol and gas as fuels, we don't know for how many years we will have these. The Sun's energy is much, much, much more! We can even make electricity with it." "Wow! How is that possible?" exclaimed Juhi.





The children were getting more excited as they were on a discovery path. "Ma'am, we must call it 'Sun Magic'," said Shiva, jumping up and down on his chair. The teacher said, "'Sun Magic'! Hmmm, that's a good idea." Just then, the bell rang. "Oh no!" exclaimed Padma, "this was so interesting!" Rohan said, "Tell us more!" The teacher said, "We must stop here today. You have another class now. Let us continue the story tomorrow, okay?" All the children sang, "Thank you, Ma'am! The 'Sun Magic' story tomorrow. Yeah!"









The next day, the class waited in anticipation for the 'Sun Magic' story. The teacher entered. "So, shall we first talk about how your gardens are growing?"

"Nooooooo! Please Ma'am, the story first!"

"Alright, we were talking about solar energy." Juhi asked, "But, how does the Sun's light and heat become electricity?"

"That's where the trays called solar panels are used. They have little circles on them and are kept in the Sun all day."

"What happens then?" wondered Padma, softly.





"These circles are made of a substance called silicon, which is made from sand. Each circle has two thin slices of silicon. One slice has a substance called boron and the other has arsenic. When the Sun's hot rays fall on these circles, electricity is produced." Shiva exclaimed, "Wow! Is this when 'Sun Magic' happens?" The teacher replied, "Yes, that's when electricity is made. It is used in streetlights and water pumps."



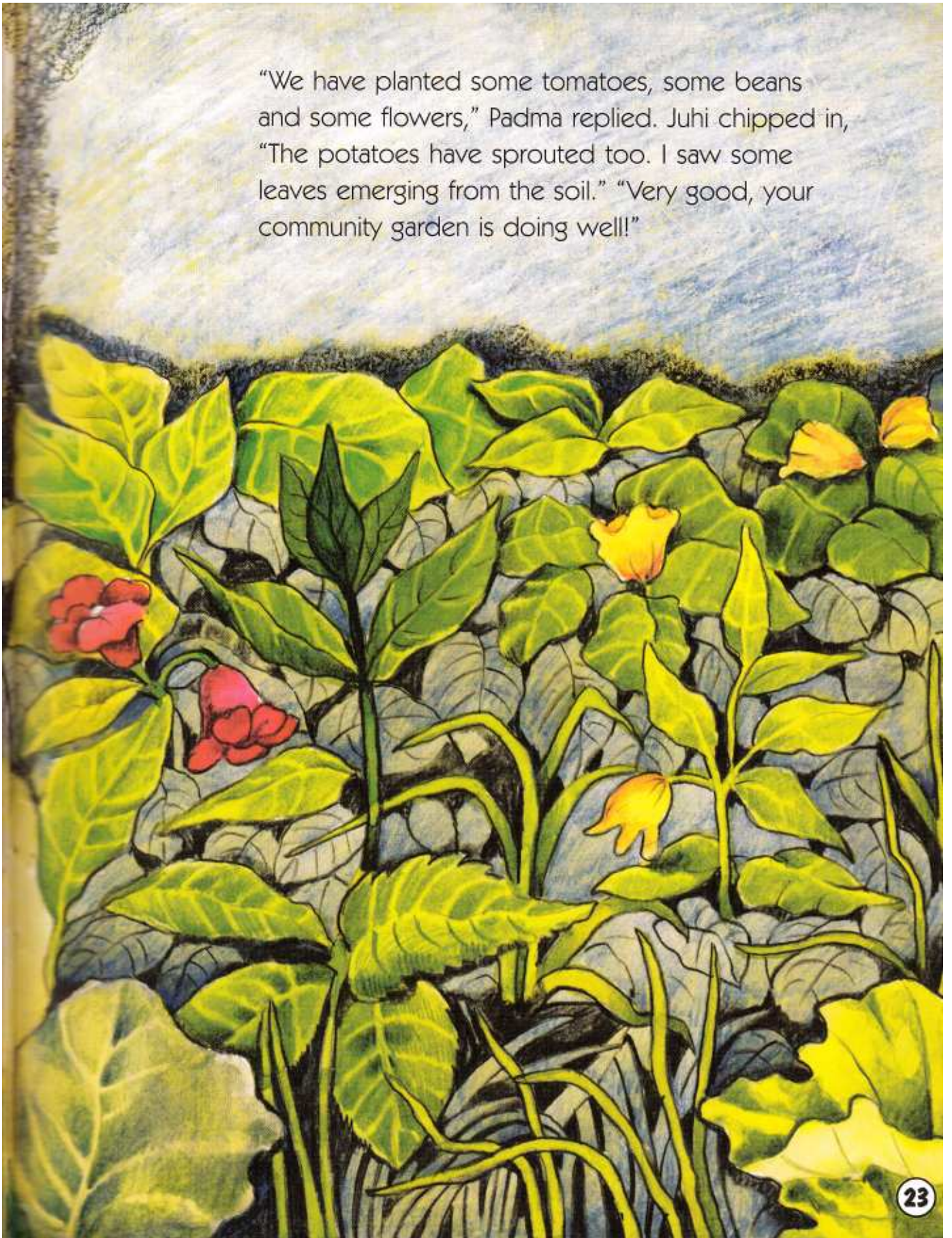




"Can we use it at once?" asked Tara. The teacher said, "Well, it can be used immediately or stored in a battery." Tara went on, "Can we use solar energy for other things too?" The teacher said, "Yes, we can cook food with this energy. The solar cooker does just that. This energy is clean and natural." "Solar energy is just like magic, Ma'am!" said Shiva in awe.



"We have planted some tomatoes, some beans and some flowers," Padma replied. Juhi chipped in, "The potatoes have sprouted too. I saw some leaves emerging from the soil." "Very good, your community garden is doing well!"







"Ma'am, won't the Sun get bored shining all day?" Shiva just had to interrupt. "Shiva, the Sun doesn't have a chance to get bored! At different times of the year, it is shining in different parts of the world. In the summer months, it is in the northern hemisphere and in winter, it is shining over Australia in the southern hemisphere."

The class got over and the children got busy comparing notes about the garden they were developing and the big role the Sun played.



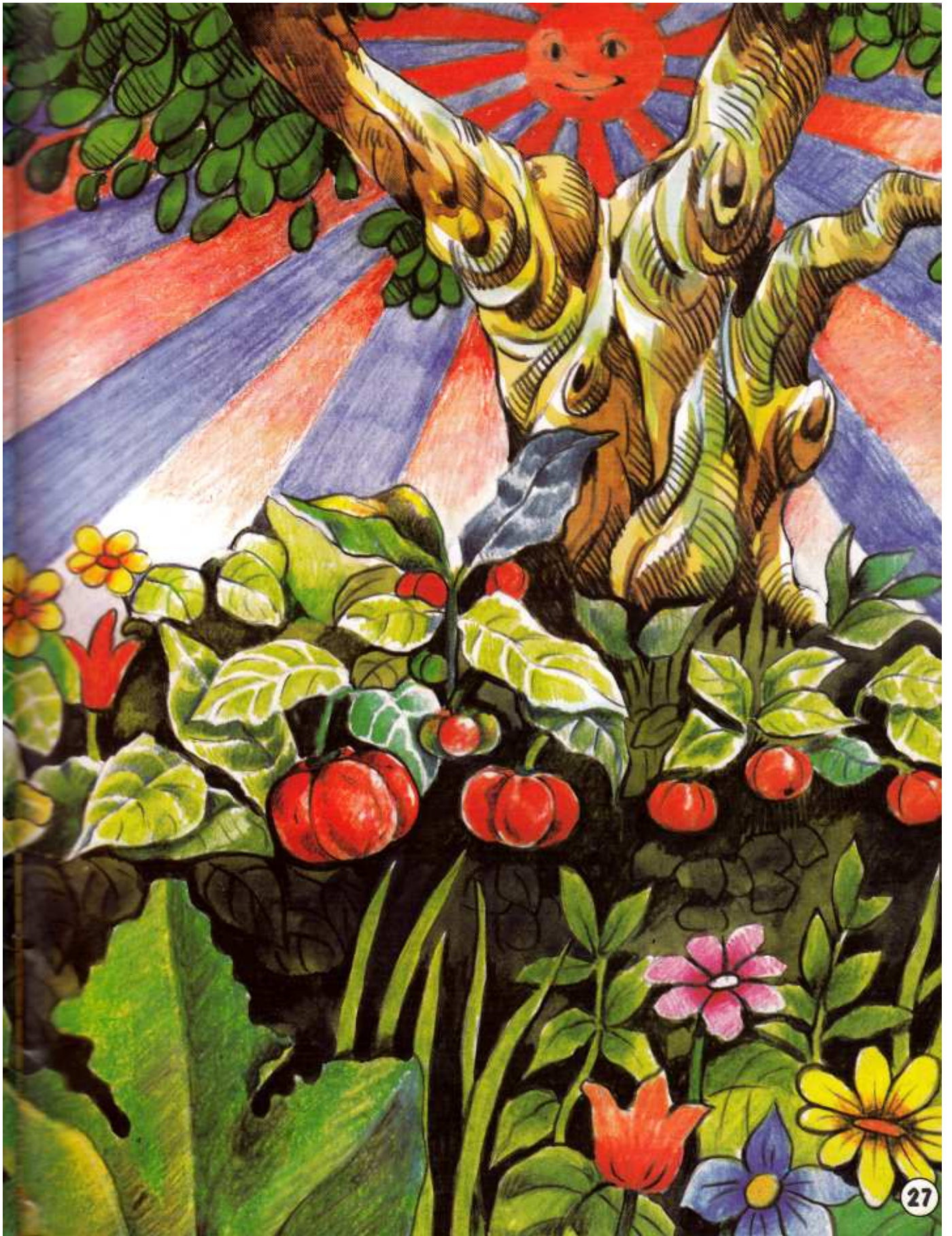




Juhi and Shiva's group had a beautiful patch of assorted flowers, shrubs and vegetables growing. "Oh, how wonderful it looks," exclaimed Raghu. "But, why has my geranium not grown?" cried Sindhu. "Maybe, it wasn't getting enough sunshine," suggested Juhi.









The day dawned when the best garden would be judged. The class waited with bated breath for the class teacher. "Well, well, I can see that you are all waiting for the decision. But first tell me, did you all enjoy working and making a garden all on your own?"

There was a loud "YES, Ma'am!"

"What was the most important thing?"

"Sun Magic!" Shiva answered.

"That's right, you have learnt all the wonderful things the Sun can do."







"While you were all busy with your gardens, I've been going around and watching. I think all your gardens are very, very good. Each one is so different. It was fun, wasn't it?"

"The reward is there for each one of you—the beautiful garden with flowers and vegetables, the environment so clean and the friendships that you made. These things will go on forever!"

Just like the Sun, which shines on and on and on...





# Garden fun

You can have fun in the garden while learning many new things. If your home does not have a garden, go to the community park! A garden is a treat for all your senses...

**See** the gorgeous colours of flowers and amazing shapes of leaves. Some flowers open at sunrise and close at sunset—try and catch them at it!

**Touch** the leaves. Some are soft and velvety, some prickly! A tree bark is quite rough compared to the skin of a mandarin orange.

**Smell** your fingers after rubbing the leaves or stems of herbs like lavender and mint. These natural scents go into the exotic perfumes that your parents use!

**Taste** the fruit growing in the garden: guava, banana, strawberry, orange, depending on the season. But never put anything in your mouth without asking an adult. Many plants have poisonous parts!

**Hear** the birds chirping early in the morning and the cicadas droning at night. Wait for the squirrels to squeak. Wonder how snails slither past without a murmur!



## Keep a garden journal

*Write or draw everything you see in the garden. You can even take pictures and stick them in!*



## Make a Garden Fun Kit with these...

- ☀ magnifying glass (to observe insects, plants)
- ✂ ruler or measuring tape
- 📓 notebook, pencil (to write/draw your discoveries)
- 📖 books about insects, plants and birds
- 📷 maybe a camera







### Chase a butterfly!

Look for a leaf with butterfly eggs. Tie a bright ribbon to it and visit it daily till the eggs hatch. Raise the caterpillar—it can eat a lot! Wait patiently while it forms a chrysalis and grows inside it. Try and be there when the butterfly comes out of the cocoon and takes its first flight! Try and get a picture.



### Thrill a bird!

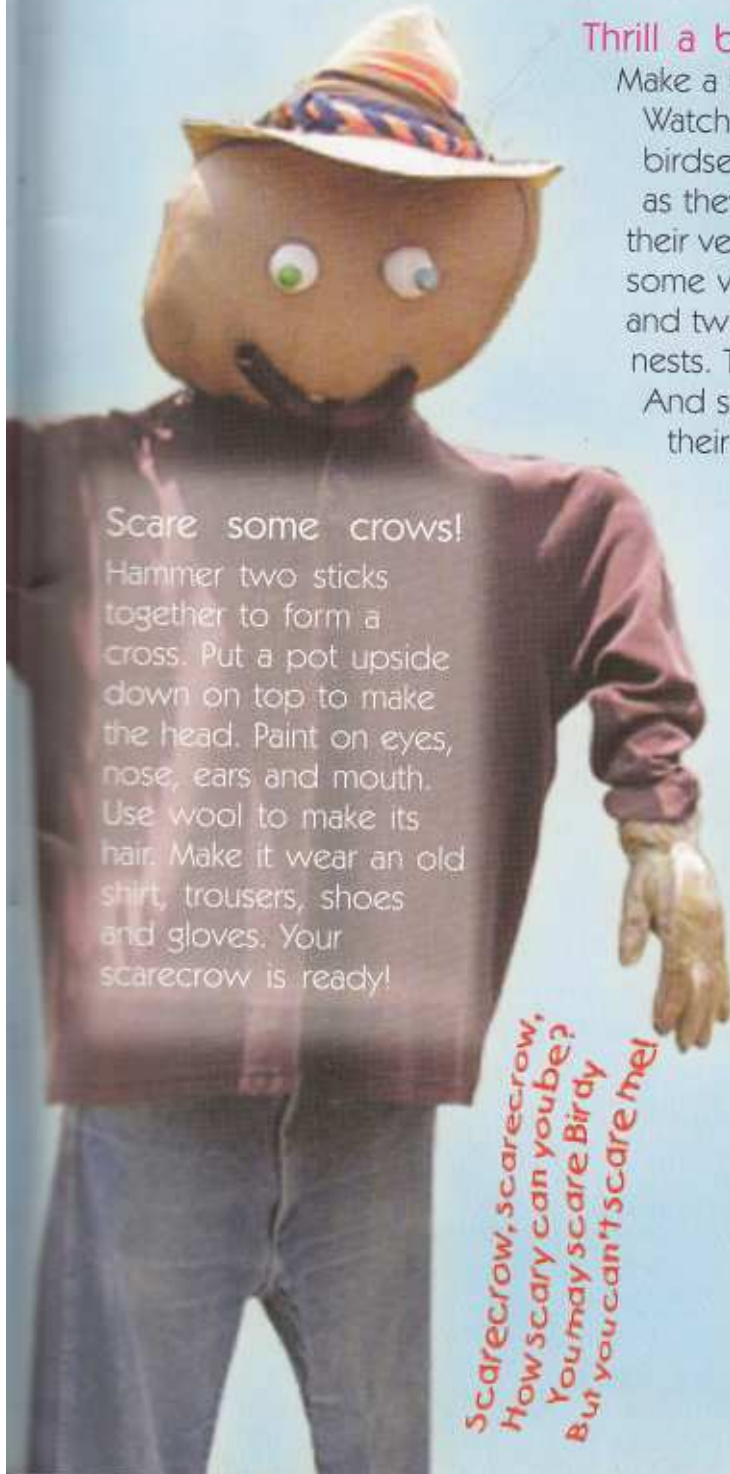
Make a bird bath and feeder!

Watch them gobble up the birdseed. Photograph them as they splash about in their very own pool! Keep some wool, straw, thread and twigs handy for the birds to make their nests. They might choose a tree in your garden. And soon, you'll see your materials show up in their nests!



### Scare some crows!

Hammer two sticks together to form a cross. Put a pot upside down on top to make the head. Paint on eyes, nose, ears and mouth. Use wool to make its hair. Make it wear an old shirt, trousers, shoes and gloves. Your scarecrow is ready!



Scarecrow, scarecrow,  
How scary can you be?  
You may scare Birdy  
But you can't scare me!

### Shower of flowers!

Make prints on white or coloured paper with real flowers or leaves dipped in paint. You can use this as a gift wrapper or bookcover!



Why don't you write your very own poem or song about your garden and send it to me? I'm the poetic turtle, Terrapin!





# Just a little sunshine!

Have you ever used a magnifying glass to burn paper? Well, you used solar power! The sun gives us light and heat energy, which can be used to make electricity. In fact, one hour of sunlight can be used to meet world energy demand for a whole year!



In the 1830s, on an African adventure, British astronomer-explorer John Herschel used a solar collector box to cook food. Do you want to make your own solar cooker? Well then, find a pizza box, newspapers, black paper, clear plastic, aluminium foil, scissors, sticking tape and ruler and get started! Here's how...



## Make your own solar cooker!

- 1 Draw a large square on the box lid.
- 2 Cut out three sides of the square.
- 3 Fold the flap back along the uncut edge.
- 4 Tape aluminium foil inside the flap.
- 5 Line the box bottom with black paper.
- 6 For insulation, roll up newspaper and fit it inside the box around the exposed square.
- 7 Cover the top and bottom of the lid with clear plastic to improve insulation.
- 8 Make the box face the sun. You can use a ruler to prop the flap open.



Photo courtesy: [www.powerhousekids.com](http://www.powerhousekids.com)

On a sunny day, warm your food in the cooker and save some fuel or electricity! You can also test the temperature inside your solar cooker with a thermometer.





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**Terrapin** is an imprint of TERI Press. Its aim is to help young citizens  
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Level 2 books are developed for children aged 8 to 11 years, keeping in mind their awareness, curiosity, and vocabulary levels.  
Parents can encourage the children to read on their own, and enjoy the interplay of text and images.

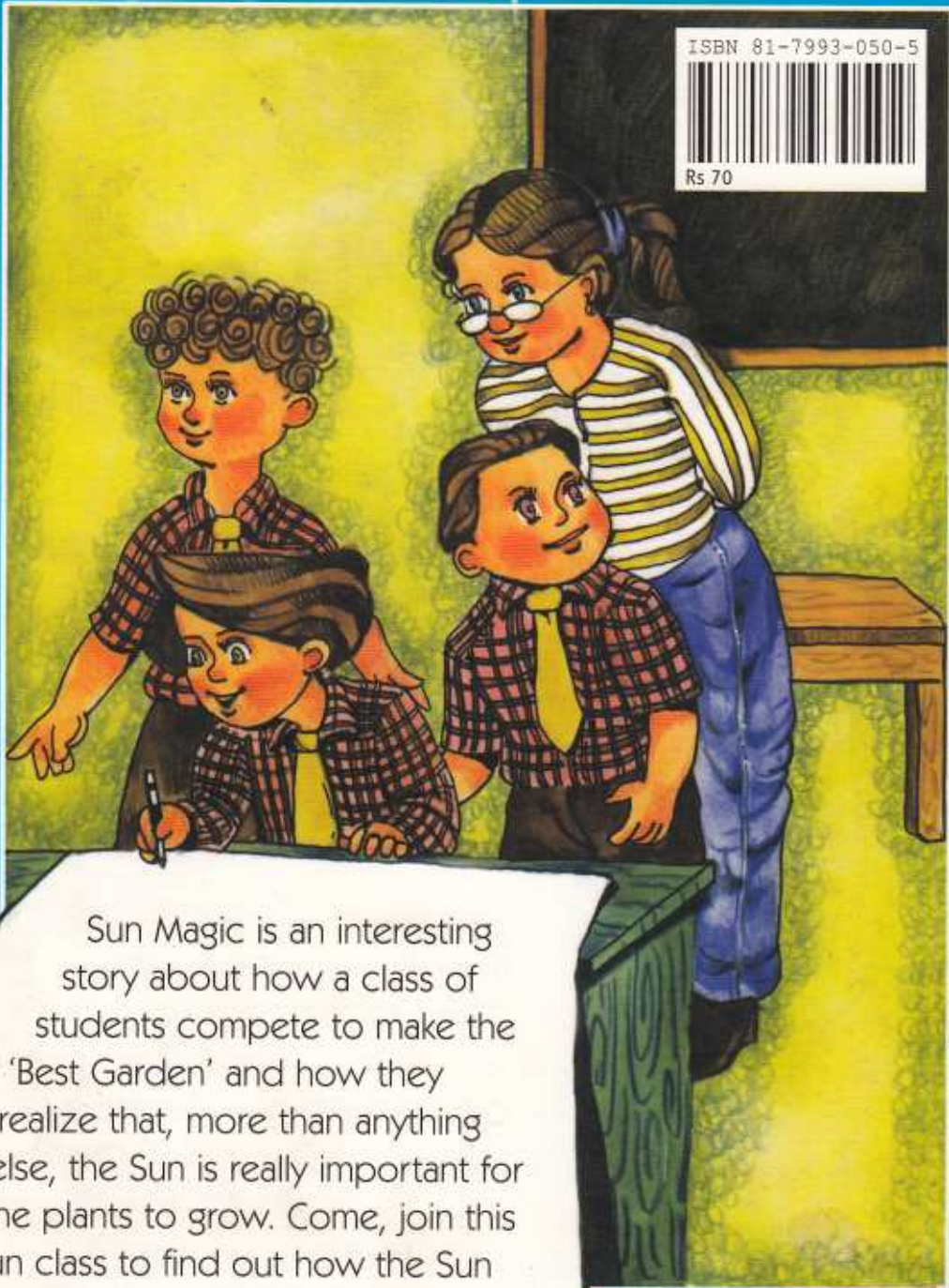


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Sun Magic is an interesting story about how a class of students compete to make the 'Best Garden' and how they realize that, more than anything else, the Sun is really important for the plants to grow. Come, join this fun class to find out how the Sun can also make your food and light up the roads at night!